CLAIM AMENDMENTS

WHAT IS CLAIMED IS:

This listing of the claims will replace all prior versions, and listing, of claims in the application:

1. **(Currently Amended)** ~~**Method**~~ **A method** for controlling a valve with a valve actuating device~~(24)~~, which is provided in the form of a piezo actuator, with a valve element~~(231)~~, a valve body~~(237)~~ and a valve seat~~(234)~~, ~~**in which**~~**the method comprising the steps of:**

- **moving** ~~**at a predeterminable point in time (t5)**~~ the valve element~~(231)~~ ~~**is moved**~~ **at a predeterminable point in time** from a position in contact with the valve seat~~(234)~~ into a predetermined position away from the valve seat~~(234)~~ by a discharging process of the piezo actuator,

- **dividing** the discharging process ~~**is divided**~~ into a first discharging duration~~(T4)~~, during which a predetermined first amount of electrical energy is discharged from the piezo actuator, a subsequent holding time duration~~(T5)~~, during which the piezo actuator is not controlled, and a subsequent second discharging duration~~(T6)~~, during which a predetermined second amount of electrical energy is discharged from the piezo actuator, and

- dependent on the waveform of a voltage at the piezo actuator or a current through the piezo actuator which is characteristic of the oscillation behavior of the piezo actuator**, adapting,** during the holding time duration~~(T5)~~, the holding time duration~~(T5)~~ and/or the first discharging

duration ~~(T4) is adapted~~ in order to ensure precise control of the valve.

2. **(Currently Amended)** ~~Method~~ **A method** for controlling a valve with a valve actuating device ~~(24)~~, which is provided in the form of a piezo actuator, with a valve element ~~(231)~~, a valve body ~~(237)~~ and a valve seat ~~(234)~~, ~~in which~~**the method comprising the steps of:**

- **moving** ~~at a predeterminable point in time (t1)~~ the valve element ~~(231)~~ ~~is moved~~ **at a predeterminable point in time** from a predetermined position away from the valve seat ~~(234)~~ into the valve seat ~~(234)~~ by a charging process of the piezo actuator,
- **dividing** the charging process ~~is divided~~ into a first charging duration ~~(T1)~~, during which a predetermined first amount of electrical energy is fed to the piezo actuator, a subsequent holding time duration ~~(T2)~~, during which the piezo actuator is not controlled, and a subsequent second charging duration ~~(T3)~~, during which a predetermined second amount of electrical energy is fed to the piezo actuator, and
- dependent on the waveform of a voltage at the piezo actuator or a current through the piezo actuator which is characteristic of the oscillation behavior of the piezo actuator during the holding time duration ~~(T2)~~, **adapting** the holding time duration ~~(T2)~~ and/or the first charging duration ~~(T1) is adapted~~ in order to ensure precise control of the valve.

3. **(Currently Amended)** ~~**Method**~~ **A method** according to ~~**one of the preceding claims**~~**claim 1**,

~~**in which**~~ **wherein** the holding time duration ~~**(T2, T5)**~~ and/or the first discharging duration ~~**(T4)**~~ or the first charging duration ~~**(T1)**~~ is/are adapted dependent on the amplitude and/or the period of the waveform of the variable which is characteristic of the oscillation behavior of the piezo actuator during the holding time duration.

4. **(Currently Amended)** ~~**Method**~~ **A method** according to claim 3,

~~**in which**~~**wherein** the holding time duration ~~**(T2, T5)**~~ is adapted dependent on the period of the waveform of the variable which is characteristic of the oscillation behavior of the piezo actuator during the holding time duration.

5. **(Currently Amended)** **A method according to claim 3, wherein**~~**Method according to one of claims 3 or 4,**~~

~~**in which**~~ the first discharging duration ~~**(T4)**~~ or the first charging duration ~~**(T1)**~~ is adapted dependent on the amplitude of the waveform of the variable which is characteristic of the oscillation behavior of the piezo actuator during the holding time duration ~~**(T2, T5)**~~.

6. **(Currently Amended)** **A method according to claim 2, wherein** ~~**Method according to one of claims 2 to 5 dependent on claim 2, in which**~~ the sum of the first charging duration ~~(T1)~~ and the holding time duration ~~(T2)~~ is limited to a maximum value ~~(T_MAX)~~, which ensures that the valve element ~~(231)~~ is still in contact with the valve seat ~~(234)~~.

7. **(Currently Amended)** **A method according to claim 1, wherein** ~~**Method according to one of claims 1 to 6, whereby**~~ the valve is part of a pump/nozzle device with

- a pump, which has a piston ~~(11)~~ and a working space ~~(13)~~, and
- a control unit, which comprises an outlet duct ~~(22)~~ that is connected hydraulically to the working space ~~(13)~~, the piezo actuator that forms a valve actuating device ~~(24)~~, and the valve, whereby the valve comprises a valve element ~~(231)~~, a valve body ~~(237)~~, a valve seat ~~(234)~~ and an auxiliary control chamber ~~(232)~~ which is disconnected hydraulically from the outlet duct ~~(22)~~ when the valve element ~~(231)~~ is in contact with the valve seat ~~(234)~~ and which otherwise is connected hydraulically to the outlet duct ~~(22)~~.

8. **(Currently Amended)** **A method according to claim 7, wherein** ~~**Method according to claim 7, in which**~~ the first discharging duration ~~(T1)~~ is limited to a minimum value ~~(T_MIN)~~, which ensures that the nozzle needle ~~(53)~~ closes the nozzle ~~(56)~~.

9. **(NEW)** Method according to claim 2,

wherein the holding time duration and/or the first discharging duration or the first charging duration is/are adapted dependent on the amplitude and/or the period of the waveform of the variable which is characteristic of the oscillation behavior of the piezo actuator during the holding time duration.

10. **(NEW)** A method according to claim 9,

wherein the holding time duration is adapted dependent on the period of the waveform of the variable which is characteristic of the oscillation behavior of the piezo actuator during the holding time duration.

11. **(NEW)** A method according to claim 9,

wherein the first discharging duration or the first charging duration is adapted dependent on the amplitude of the waveform of the variable which is characteristic of the oscillation behavior of the piezo actuator during the holding time duration.

12. **(NEW)** A method according to claim 2,

wherein the valve is part of a pump/nozzle device with

- a pump, which has a piston and a working space, and
- a control unit, which comprises an outlet duct that is connected hydraulically to the working space, the piezo actuator that forms a valve actuating device, and the valve, whereby the valve comprises a valve element, a valve body, a valve seat and an auxiliary control chamber which is disconnected hydraulically from the outlet duct when the valve element is in contact with the valve seat and which otherwise is connected hydraulically to the outlet duct.

13. **(NEW)** A method according to claim 12,

wherein the first discharging duration is limited to a minimum value, which ensures that the nozzle needle closes the nozzle.

14. **(NEW)** An arrangement for controlling a valve with a valve actuating device, which is provided in the form of a piezo actuator, with a valve element, a valve body and a valve seat, comprising:

- means for moving the valve element at a predeterminable point in time from a predetermined position away from the valve seat into the valve seat by a charging process of the piezo actuator,
- means for dividing the charging process into a first charging duration, during which a predetermined first amount of electrical energy is fed to the piezo actuator, a subsequent holding time duration, during which the piezo actuator is not controlled, and a subsequent second charging duration, during which a predetermined second amount of electrical energy is fed to the piezo actuator, and
- dependent on the waveform of a voltage at the piezo actuator or a current through the piezo actuator which is characteristic of the oscillation behavior of the piezo actuator during the holding time duration, means for adapting the holding time duration and/or the first charging duration in order to ensure precise control of the valve.

15. **(NEW)** An arrangement according to claim 14,

wherein the holding time duration and/or the first discharging duration or the first charging duration is/are adapted dependent on the amplitude and/or the period of the waveform of the variable which is characteristic of the oscillation behavior of the piezo actuator during the holding time duration.

16. **(NEW)** An arrangement according to claim 15,

wherein the holding time duration is adapted dependent on the period of the waveform of the variable which is characteristic of the oscillation behavior of the piezo actuator during the holding time duration.

17. **(NEW)** An arrangement according to claim 15,

wherein the first discharging duration or the first charging duration is adapted dependent on the amplitude of the waveform of the variable which is characteristic of the oscillation behavior of the piezo actuator during the holding time duration.

18. **(NEW)** An arrangement according to claim 14,

wherein the sum of the first charging duration and the holding time duration is limited to a maximum value, which ensures that the valve element is still in contact with the valve seat.

19. **(NEW)** An arrangement according to claim 14,

wherein the valve is part of a pump/nozzle device comprising

- a pump, which has a piston and a working space, and
- a control unit, which comprises an outlet duct that is connected hydraulically to the working space, the piezo actuator that forms a valve actuating device, and the valve, whereby the valve comprises a valve element, a valve body, a valve seat and an auxiliary control chamber which is disconnected hydraulically from the outlet duct when the valve element is in contact with the valve seat and which otherwise is connected hydraulically to the outlet duct.

20. **(NEW)** An arrangement according to claim 19,

wherein the first discharging duration is limited to a minimum value, which ensures that the nozzle needle closes the nozzle.